

DEPARTMENT OF NOTES, REVIEWS, ETC.

It is the purpose, in this department, to present from time to time brief original notes, both of methods of work and of results, by members of the Society. All members are invited to submit such items. In the absence of these there will be given a few brief abstracts of recent work of more general interest to students and teachers. There will be no attempt to make these abstracts exhaustive. They will illustrate progress without attempting to define it, and will thus give to the teacher current illustrations, and to the isolated student suggestions of suitable fields of investigation.—[Editor.]

SELECTION AMONG BACTERIA

Rettger and Sherrick (*Jour. Med. Research*, April, 1911) present a study of variation in Bacteria. The chief points tested were:—in respect to color production, and in respect to resistance to corrosive sublimate. They find that sharp differences are produced by selection in both these respects, and very distinct and permanent strains are secured. They believe, however, that much of it is to be explained (as is also true of different degrees of virulence in pathogenic bacteria) by the fact that the action of bacteria is largely a collective matter; and the total result of a strain is due to the average results, so to speak, of the individuals. Selection may in such instances merely mean getting pure cultures of those individuals that are more, or less, color-producing or virulent, and thus securing greater, or less, total results. This would not explain the increased individual resistance to the corrosive sublimate which was secured; but it would be necessary to assume also some mutation during the experiments.

It is possible that attenuation or increase in virulence, known to take place in bacilli in passing thru animal bodies, may be due largely to the selective effect of the animal body over the "pure" strains (weaker or more virulent as the case may be), and only in much less degree to an actual increase of virulence by production of a new, more virulent type.

THE BI-LOBING OF COMPOUND EYES

The Ephemerida, or May-flies, furnish us with many queer structural features; the writer with the late Dr. Shanks, in the

study of the larvae of these forms, discovered the interesting fact that the males have the eyes modified to secure a kind of double vision.

The lower portion of each compound eye is segmented off into a distinct lobe, having a somewhat different radius of curvature. (Plate II, Fig. 1).

This lower lobe is heavily pigmented, and since its ommatidia are directed downward, is adjusted for seeing in the lesser light; while the upper, larger lobes are less pigmented, or non-pigmented, and face upward toward the primary source of light.

A subsequent examination of many different aquatic larvae showed that the eyes of most of them present a distinct pigmental division into an upper and lower portion.

This modification is probably of larval adjustment, an adaptation to the condition of a stronger surface light and a more subdued reflection from the bottom of the pool or stream.

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EXHAUSTION AND SENILITY IN NERVE CELLS

Dolley (Jour. Med. Research, April, 1911) gives an interesting account of recovery from exhaustion known to occur in nerve cells as the result of activity. In exhaustion the following conditions of cells may be distinguished.

1. Cells (which in young, healthy animals are the great majority) that come fully back after activity to a resting condition. The general cell-contents is restored first, the nucleus (exhausted first) is last to be restored.

2. Cells that suffer, thru activity, some qualitative damage and disorganization of structure,—either (a) temporary, i. e. capable of a large degree of restoration, or (b) in which the disintegration is so profound that it represents a permanent loss.

In the cases of temporary disorganization an irregularity in the form of the cells is shown, due to loss of substance. With repetition of activity (and with increased age) this irregularity becomes permanent and exaggerated, accompanied by deficiency in chromatin, by loss of nucleus, etc. A perfect natural series from